

**Practice: 442 - Irrigation System, Sprinkler****Scenario: #1 - Gravity to Pivot Conversion****Scenario Description:**

Decription: Installation of a low pressure center pivot system.

Resource concerns include: Soil Erosion (Concentrated flow erosion e.g. irrigation induced), Insufficient Water (Inefficient use of irrigation water), Water Quality Degradation (Excess nutrients in surface and ground waters, Excessive salts in surface and ground waters, Excess pathogens and chemicals from manure, bio-solids or compost applications).

Associated Practices: Irrigation Pipeline (430), Pumping Plant (533), Irrigation Water Management (449)

**Before Situation:**

A 160 acre field is flood irrigated. Application of irrigation water is inefficient and non-uniform. Irrigation water is typically over applied in some parts of the field, and under applied in others. Deep percolation from the excess irrigation delivers excess nutrients salts, and chemicals to the ground water. Runoff from the field contains excess nutrients and degrades the receiving waters. Irrigated induced erosion is excessive.

**After Situation:**

The existing surface irrigation system is converted to a low pressure center pivot. Corners are converted to non-irrigated cropland. The pivot is 1300 feet in length with pressure regulators and low pressure sprinklers.

The new irrigation system applies water efficiently and uniformly to maintain adequate soil water for the desired level of plant growth. Deep percolation and field runoff is eliminated and there are no excess nutrients, salts or pathogens delivered to the receiving waters. Irrigation induced runoff is eliminated.

This center pivot scenario includes all hardware from the pivot point, including the concrete pad the pivot is placed on.

**Scenario Feature Measure:** Length of Center Pivot Lateral

**Scenario Unit:** Linear Feet

**Scenario Typical Size:** 1,300

**Scenario Cost:** \$94,341.38

**Scenario Cost/Unit:** \$72.57

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Materials</b>						
Irrigation, Center pivot system with appurtenances, variable cost portion	318	Variable cost portion of the center pivot system with appurtenances. This portion includes the following items: pivot point, pipe, towers, pad, controls, sprinklers, installation.	Foot	\$67.57	1300	\$87,841.00
Irrigation, Center pivot system with appurtenances, fixed cost portion	317	Fixed cost portion of the center pivot system with appurtenances. This portion includes the following items: pivot point, pipe, towers, pad, controls, sprinklers, installation.	Each	\$6,170.22	1	\$6,170.22
<b>Mobilization</b>						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$258.72	1	\$258.72
Mobilization, very small equipment	1137	Equipment that is small enough to be transported by a pick-up truck with typical weights less than 3,500 pounds. Can be multiple pieces of equipment if all hauled simultaneously.	Each	\$71.44	1	\$71.44

**Practice: 442 - Irrigation System, Sprinkler****Scenario: #2 - Linear Move System****Scenario Description:**

This practice includes converting from a gravity irrigated system to a linear irrigation system (lateral move).

Resource concerns include: Soil Erosion (Concentrated flow erosion e.g. irrigation induced), Insufficient Water (Inefficient use of irrigation water), Water Quality Degradation (Excess nutrients in surface and ground waters, Excessive salts in surface and ground waters, Excess pathogens and chemicals from manure, bio-solids or compost applications), Inefficient Energy Use (Equipment and facilities e.g. pumping)

Associated Practices: Irrigation Pipeline (430), Pumping Plant (533), Irrigation Water Management (449)

Payment rate is figured per foot of installed hardware length.

**Before Situation:**

A 76 acre field is flood irrigated. Application of irrigation water is inefficient and non-uniform. Irrigation water is typically over applied in some parts of the field, and under applied in others. Deep percolation from the excess irrigation delivers excess nutrients salts, and chemicals to the ground water. Runoff from the field contains excess nutrients and degrades the receiving waters. Irrigated induced erosion is excessive.

**After Situation:**

A typical unit is approximately 76 acres in size with the sprinkler system typically 1280 feet in length.

Irrigation water is efficiently and uniformly applied to maintain adequate soil water for the desired level of plant growth. Deep percolation and field runoff is eliminated and there are no excess nutrients, salts or pathogens delivered to the receiving waters. Irrigation induced runoff is eliminated.

**Scenario Feature Measure:** Length of Linear Move Lateral

**Scenario Unit:** Linear Feet

**Scenario Typical Size:** 1,280

**Scenario Cost:** \$118,290.08

**Scenario Cost/Unit:** \$92.41

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Materials</b>						
Linear Move System with appurtenances	322	Linear/lateral move system including: central tower, lateral towers, pipes, sprinklers, controllers, installation.	Acre	\$1,547.76	76	\$117,629.76
<b>Mobilization</b>						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$258.72	2	\$517.44
Mobilization, very small equipment	1137	Equipment that is small enough to be transported by a pick-up truck with typical weights less than 3,500 pounds. Can be multiple pieces of equipment if all hauled simultaneously.	Each	\$71.44	2	\$142.88